Inventories and Cost of Sales

Chapter 6

Wild and Shaw

Fundamental Accounting Principles

25th Edition

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Chapter 6 Learning Objectives

CONCEPTUAL

C1 Identify the items and costs of merchandise inventory.

ANALYTICAL

A1 Analyze the effects of inventory methods for both financial and tax reporting.

A2 Analyze the effects of inventory errors on current and future financial statements.

A3 Assess inventory management using both inventory turnover and days' sales in inventory.

PROCEDURAL

P1 Compute inventory in a perpetual system using the methods of specific identification, FIFO, LIFO, and weighted average.

P2 Compute the lower of cost or market amount of inventory.

P3 Appendix 6A—Compute inventory in a periodic system using the methods of specific identification, FIFO, LIFO, and weighted average.

P4 Appendix 6B—Apply both the retail inventory and gross profit methods to estimate inventory.

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Learning Objective C1

Identify the items and costs of merchandise inventory.

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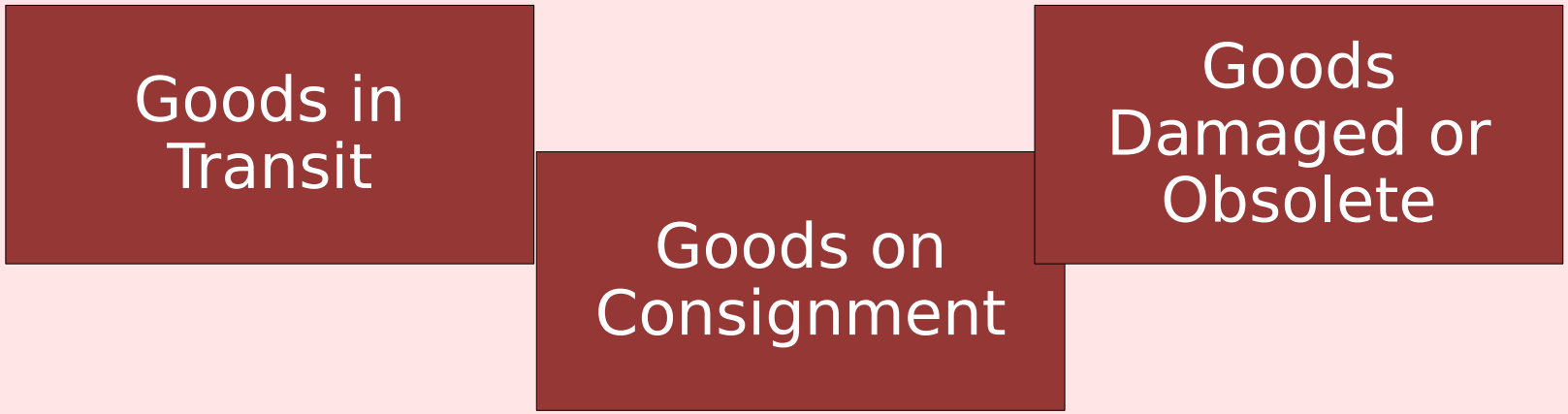
Determining Inventory Items

Merchandise inventory includes all goods that a company owns and holds for sale, regardless of where the goods are located when inventory is counted.

Items requiring special attention include:



Learning Objective C1: Identify the items and costs of merchandise inventory.

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Goods in Transit

- FOB shipping point – goods included in buyer's inventory when shipped.
- FOB destination – goods included in buyer's inventory after arrival at destination.

Exhibit 6.1

Learning Objective C1: Identify the items and costs of merchandise inventory.

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Goods on Consignment

- Consignor: owner of goods.
- Consignee: sells goods for the owner.
- Merchandise is included in the inventory of the consignor.
- Consignee never reports consigned goods in inventory.

Learning Objective C1: Identify the items and costs of merchandise inventory.

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Goods Damaged or Obsolete

- Damaged or obsolete goods are not reported in inventory if they cannot be sold.
- Damaged or obsolete goods which can be sold are included in inventory at net realizable value.
- Net realizable value = sales price minus selling costs.
- Loss is recorded when damage or obsolescence occurs.

Learning Objective C1: Identify the items and costs of merchandise inventory.

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Determining Inventory Costs

Include all expenditures necessary to bring an item to a salable condition and location.

Inventory cost = Invoice cost - discounts + other costs

- Other costs include:
  - Shipping
  - Storage
  - Insurance
  - Import duties

Learning Objective C1: Identify the items and costs of merchandise inventory.

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Internal Controls and Taking a Physical Count

Most companies take a physical count of inventory at least once each year.

Physical count is used to adjust the inventory account balance to the actual inventory available.

Good internal controls over the inventory count include:

1. Prenumbered inventory tickets.
2. Counters have no inventory responsibility.
3. Counters confirm existence, amount, and condition of inventory.
4. Second count is taken by a different counter.
5. Manager confirms all items counted only once.

Learning Objective C1: Identify the items and costs of merchandise inventory.

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Inventory Costing Methods

Four methods are used to assign costs to inventory and to cost of goods sold:

1. Specific identification
2. First-in, First-out (FIFO)
3. Last-in, First-out (LIFO)
4. Weighted average

Learning Objective C1: Identify the items and costs of merchandise inventory.

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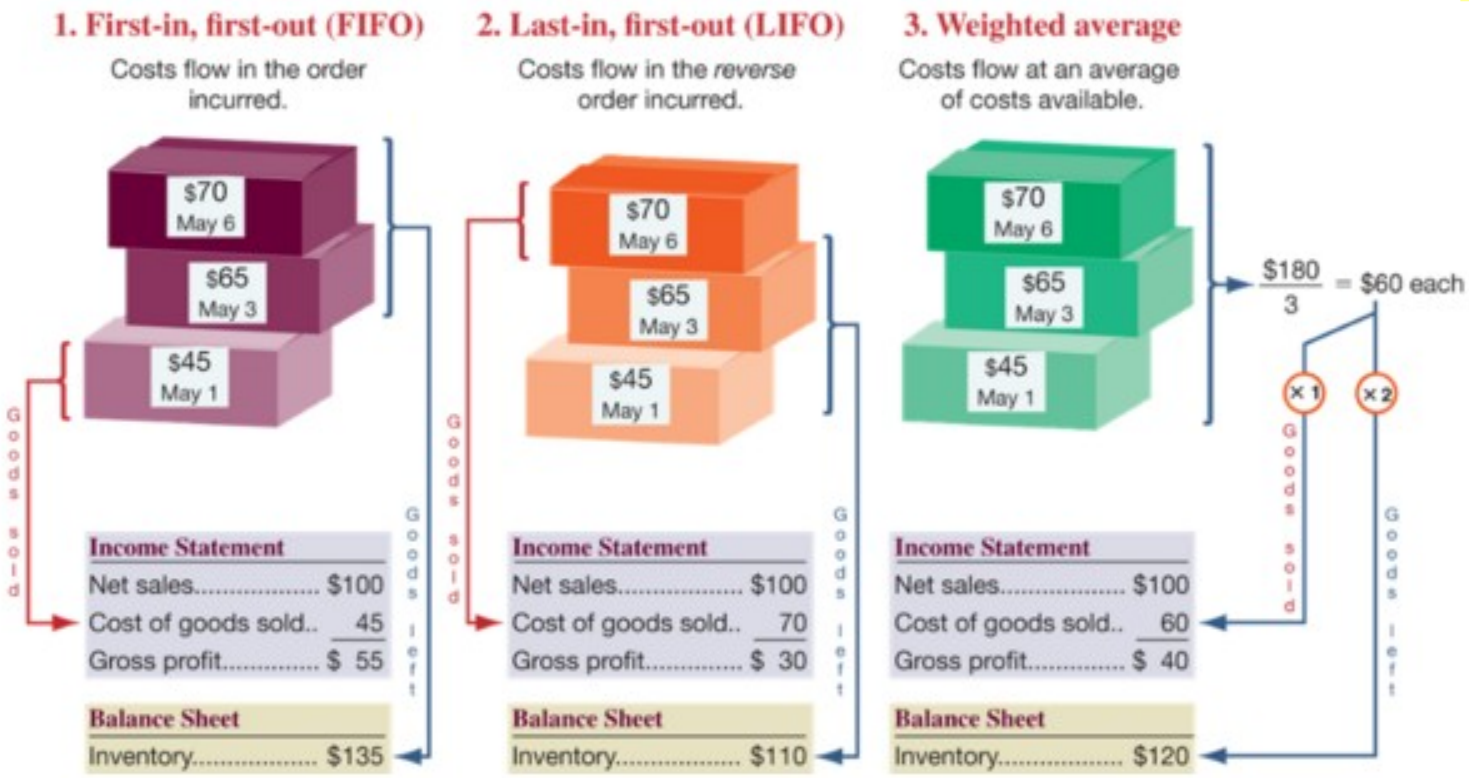
Inventory Cost Flow Methods

Exhibit 6.2



Learning Objective C1: Identify the items and costs of merchandise inventory.

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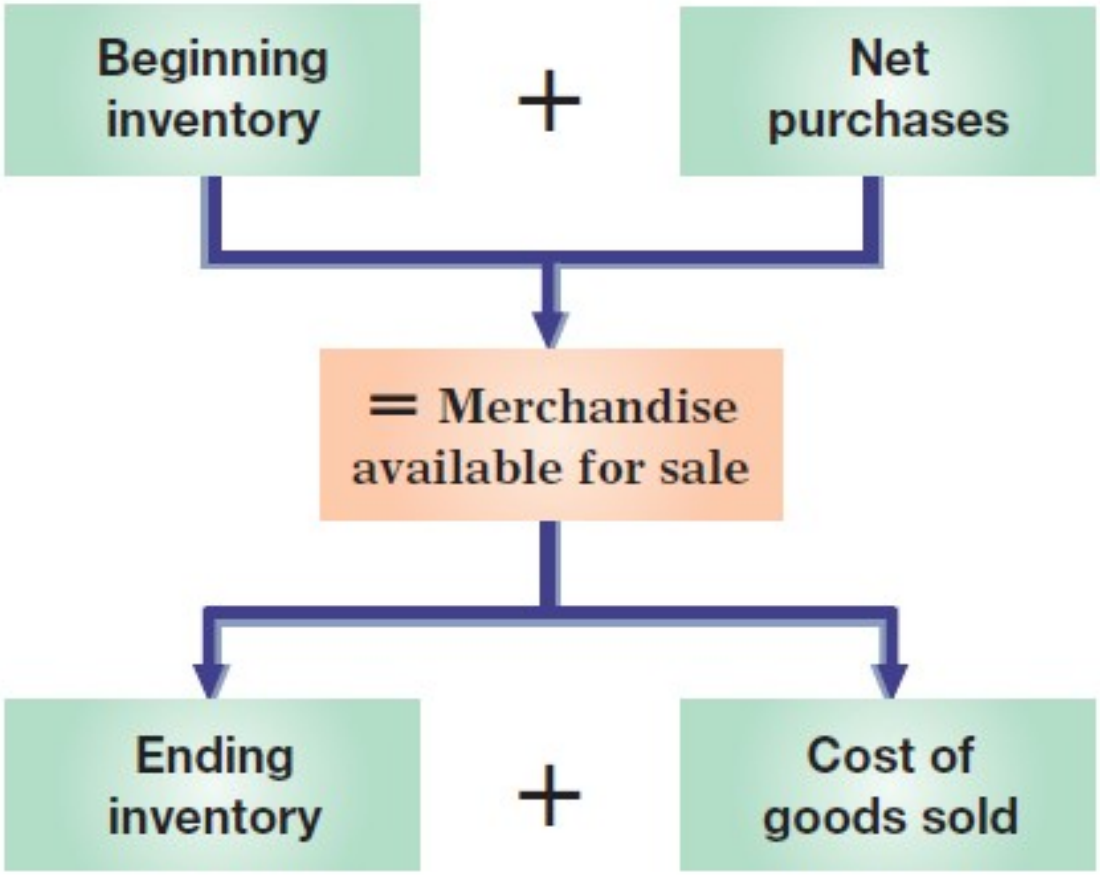
Cost Flow of Inventory



Learning Objective C1: Identify the items and costs of merchandise inventory.

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Learning Objective P1

Compute inventory in a perpetual system using the methods of specific identification, FIFO, LIFO, and weighted average.

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Inventory Costing under a Perpetual System

Physical flow does not need to follow cost flow.

Learning Objective P1: Compute inventory in a perpetual system using the methods of specific identification, FIFO, LIFO, and weighted average.

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Inventory Costing Illustration: Perpetual System

Exhibit 6.3

Here is information about the mountain bike inventory of Trekking for the month of August.

Date	Activit	Units Acquired			Units Sold at Retail	Unit
Aug.1	Beginning inventory	10 units @ $ 91	=	$ 910		10 units
Aug.3	Purchases	15 units @ $106	=	$ 1,590		25 units
Aug.14	Sales				20 units @ $130	5 units
Aug.17	Purchases	20 units @ $115	=	$ 2,300		25 units
Aug.28	Purchases	10 units @ $119	=	$ 1,190		35 units
Aug.30	Sales				23 units @ $150	**12 units**
	Totals	**55 units**	=	**$5,990**	**43 units**	
	Units available for			Goods available for		

Specific Identification: Perpetual

Exhibit 6.4

Date	Goods Available		Cost of Goods		Ending	
Aug.1	10 @ $ 91	= $ 910	10 @ $ 91	= $ 910		
Aug.3	15 @ $106	= $ 1,590	15 @ $106	= $1,590		
Aug.17	20 @ $115	= $ 2,300	15 @ $115	= $1,725	5 @ $115	= $575
Aug.28	10 @ $119	= $ 1,190	3 @ $119	= $ 357	7 @ $119	= $833
		$5,990	43	**$4,582**	12	= **$1,408**

Learning Objective P1: Compute inventory in a perpetual system using the methods of specific identification, FIFO, LIFO, and weighted average.

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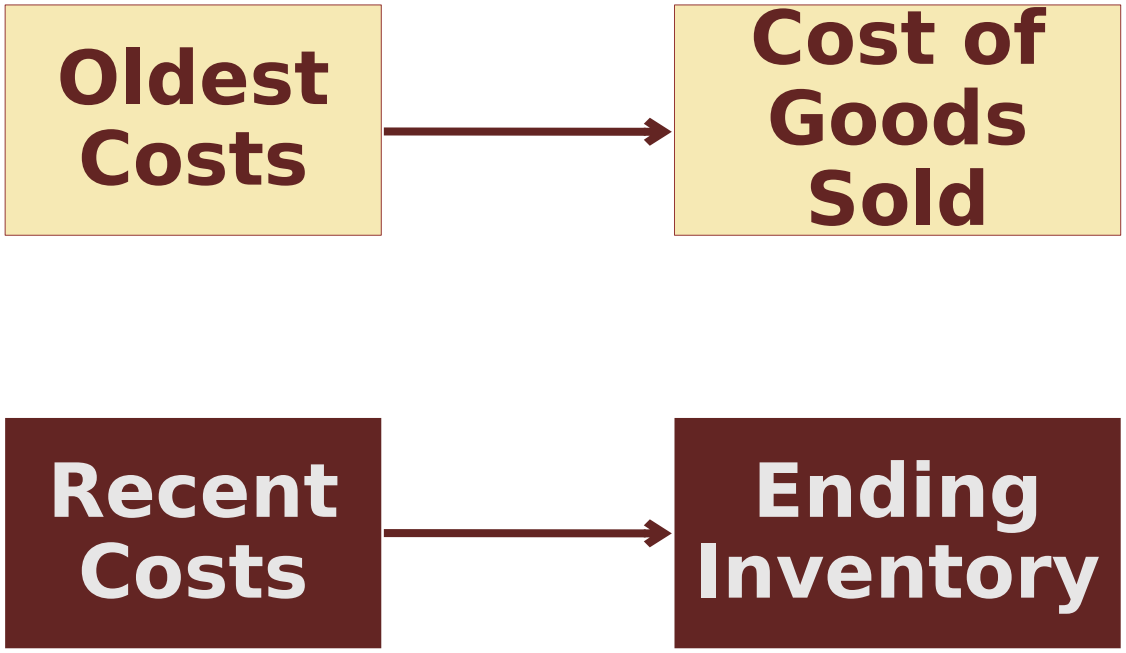
First-In, First-Out (FIFO): Definition Perpetual



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First-In, First-Out (FIFO): Perpetual

Exhibit 6.5

Date	Goods Purchased	Cost of Goods Sold		Inventory Balance	
Aug.1	Beginning balance			10 @ $ 91	= $ 910
Aug.3	15 @ $106 = $1,590			10 @ $ 91 15 @ $106	= $ 2,500
Aug.14		10 @ $ 91 = $ 910 10 @ $106 = $1,060	= **$1,970**	5 @ $ 106	= $ 530
Aug.17	20 @ $115 = $2,300			5 @ $ 106 20 @ $115	= $ 2,830
Aug.28	10 @ $119 = $1,190			5 @ $106 20 @ $115 10 @ $119	= $ 4,020
Aug.30		5 @ $106 = $ 530 18 @ $115 = $2,070	= **$2,600**	5 @ $ 115 7 @ $115	= **$1,420**
			$4,570		

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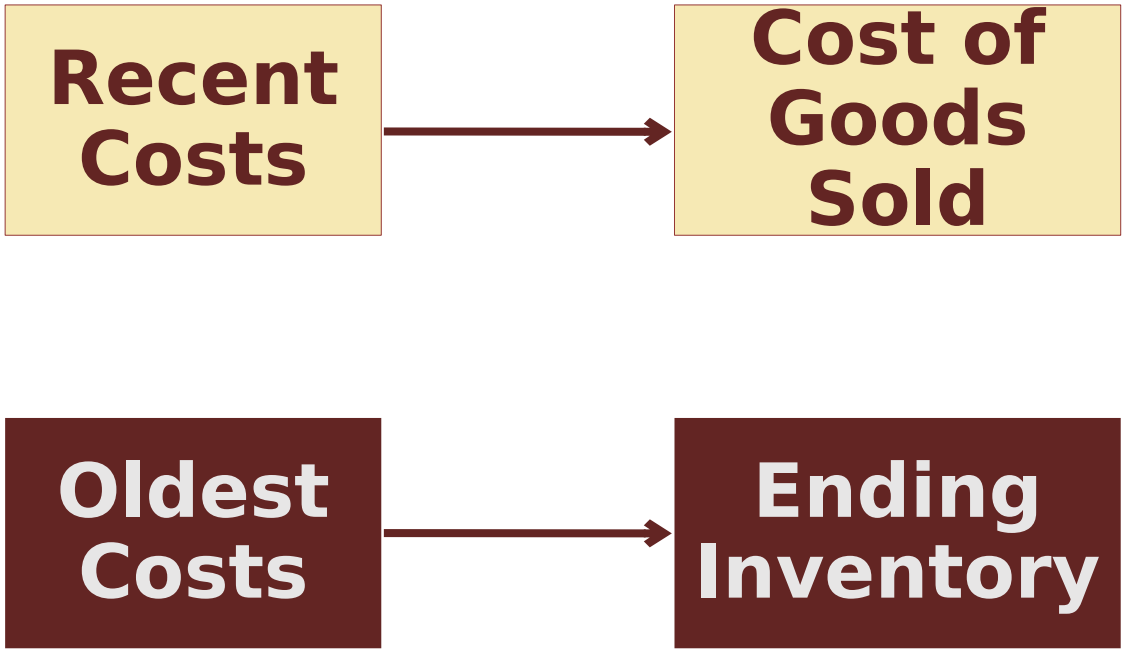
Last-In, First-Out (LIFO): Definition Perpetual



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Last-In, First-Out (LIFO): Perpetual

Exhibit 6.6

Date	Goods Purchased	Cost of Goods Sold		Inventory Balance	
Aug.1	Beginning balance			10 @ $ 91	= $ 910
Aug.3	15 @ $106 = $1,590			10 @ $ 91 15 @ $106	= $ 2,500
Aug.14		15 @ $106 = $1,590 5 @ $ 91 = $ 455	= **$2,045**	5 @ $ 91	= $ 455
Aug.17	20 @ $115 = $2,300			5 @ $ 91 20 @ $115	= $ 2,755
Aug.28	10 @ $119 = $1,190			5 @ $ 91 20 @ $115 10 @ $119	= $ 3,945
Aug.30		10 @ $119 = $1,190 13 @ $115 = $1,495	= **$2,685**	5 @ $ 91 7 @ $115	= **$1,260**
			$4,730		

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Weighted Average: Perpetual

When a unit is sold, the **average cost** of each unit in inventory is assigned to cost of goods sold.

Cost of Goods Available for Sale (at each sale) ÷ **Units on hand on the date of sale (at each sale)**

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Weighted Average: Perpetual Part 1

Date	Goods Purchased	Cost of Goods Sold	Inventory Balance
Aug. 1	Beginning balance		10 @ $ 91 = $ 910 (10 @ $ 91 per unit)
Aug. 3	15 @ $106 = $1,590		10 @ $ 91 15 @ $106 = $2,500 (25 @ $100 per unit)[a]
Aug. 14		20 @ $100 = $2,000	5 @ $100 = $ 500 (5 @ $100 per unit)[b]

On August 14, 20 bikes are sold. To determine the cost of the units sold, we first need to compute the weighted average cost per unit of items in inventory.

Cost of goods available for sale	**$ 2500**
Units available at time of sale	**÷25**

The cost of goods sold for the August 14 sale is $2,000. After this sale, there are five $100 units in inventory totaling $500.

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Weighted Average: Perpetual Part 2

Date	Goods Purchased	Cost of Goods Sold	Inventory Balance
Aug. 1	Beginning balance		10 @ $ 91 = $ 910 (10 @ $ 91 per unit)
Aug. 3	15 @ $106 = $1,590		10 @ $ 91 15 @ $106 } = $2,500 (25 @ $100 per unit)[a]
Aug. 14		20 @ $100 = $2,000	5 @ $100 = $ 500 (5 @ $100 per unit)[b]
Aug. 17	20 @ $115 = $2,300		5 @ $100 20 @ $115 } = $2,800 (25 @ $112 per unit)[c]

August 17:	
Cost of goods available for sale	**$ 2800**
Units available at time of sale 5 + 20	**÷25**

After the August 14 sale, there are 5 units in inventory totaling $500.

On August 17, 20 units are purchased for $2,300.

($2,300 + 500) / 25 = $2,800 / 25 = $112 per unit.

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Weighted Average: Perpetual Part 3

Date	Goods Purchased	Cost of Goods Sold	Inventory Balance
Aug. 1	Beginning balance		10 @ $ 91 = $ 910 (10 @ $ 91 per unit)
Aug. 3	15 @ $106 = $1,590		10 @ $ 91 15 @ $106 = $2,500 (25 @ $100 per unit)[a]
Aug. 14		20 @ $100 = $2,000	5 @ $100 = $ 500 (5 @ $100 per unit)[b]
Aug. 17	20 @ $115 = $2,300		5 @ $100 20 @ $115 = $2,800 (25 @ $112 per unit)[c]
Aug. 28	10 @ $119 = $1,190		25 @ $112 10 @ $119 = $3,990 (35 @ $114 per unit)[d]

August 28:

Cost of goods available for sale	**$ 3,990**
Units available at time of sale 5 + 20 + 10	**= 35**

After the August 28 purchase, there are (5 + 20 + 10) = 35 units in inventory totaling ($2,800 + 1,190) = $3,990. $3,900 / 35 = $114 per unit.

Learning Objective P1: Compute inventory in a perpetual system using the methods of specific identification, FIFO, LIFO, and weighted average.

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Weighted Average: Perpetual Part 4

Date	Goods Purchased	Cost of Goods Sold	Inventory Balance
Aug. 1	Beginning balance		10 @ $ 91 = $ 910 (10 @ $ 91 per unit)
Aug. 3	15 @ $106 = $1,590		10 @ $ 91 15 @ $106 = $2,500 (25 @ $100 per unit)[a]
Aug. 14		20 @ $100 = **$2,000**	5 @ $100 = $ 500 (5 @ $100 per unit)[b]
Aug. 17	20 @ $115 = $2,300		5 @ $100 20 @ $115 = $2,800 (25 @ $112 per unit)[c]
Aug. 28	10 @ $119 = $1,190		25 @ $112 10 @ $119 = $3,990 (35 @ $114 per unit)[d]
Aug. 30		23 @ $114 = **$2,622**	12 @ $114 = **$1,368** (12 @ $114 per unit)[e]
		$4,622	

Exhibit 6.7

Cost of goods sold for August 30 sale is = $2,622

Ending inventory is composed of 12 units @ an average cost of $114 each or $1,368.

Learning Objective P1: Compute inventory in a perpetual system using the methods of specific identification, FIFO, LIFO, and weighted average.

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Weighted Average: Perpetual Part 5

Date	Goods Purchased	Cost of Goods Sold	Inventory Balance
Aug. 1	Beginning balance		10 @ $ 91 = $ 910 (10 @ $ 91 per unit)
Aug. 3	15 @ $106 = $1,590		10 @ $ 91 15 @ $106 = $2,500 (25 @ $100 per unit)[a]
Aug. 14		20 @ $100 = $2,000	5 @ $100 = $ 500 (5 @ $100 per unit)[b]
Aug. 17	20 @ $115 = $2,300		5 @ $100 20 @ $115 = $2,800 (25 @ $112 per unit)[c]
Aug. 28	10 @ $119 = $1,190		25 @ $112 10 @ $119 = $3,990 (35 @ $114 per unit)[d]
Aug. 30		23 @ $114 = $2,622	12 @ $114 = $1,368 (12 @ $114 per unit)[e]
		$4,622	

[a] $100 per unit = ($2,500 inventory balance ÷ 25 units in inventory).
[b] $100 per unit = ($500 inventory balance ÷ 5 units in inventory).
[c] $112 per unit = ($2,800 inventory balance ÷ 25 units in inventory).
[d] $114 per unit = ($3,990 inventory balance ÷ 35 units in inventory).
[e] $114 per unit = ($1,368 inventory balance ÷ 12 units in inventory).

Exhibit 6.7

Learning Objective P1: Compute inventory in a perpetual system using the methods of specific identification, FIFO, LIFO, and weighted average.

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Learning Objective A1

Analyze the effects of inventory methods for both financial and tax reporting.

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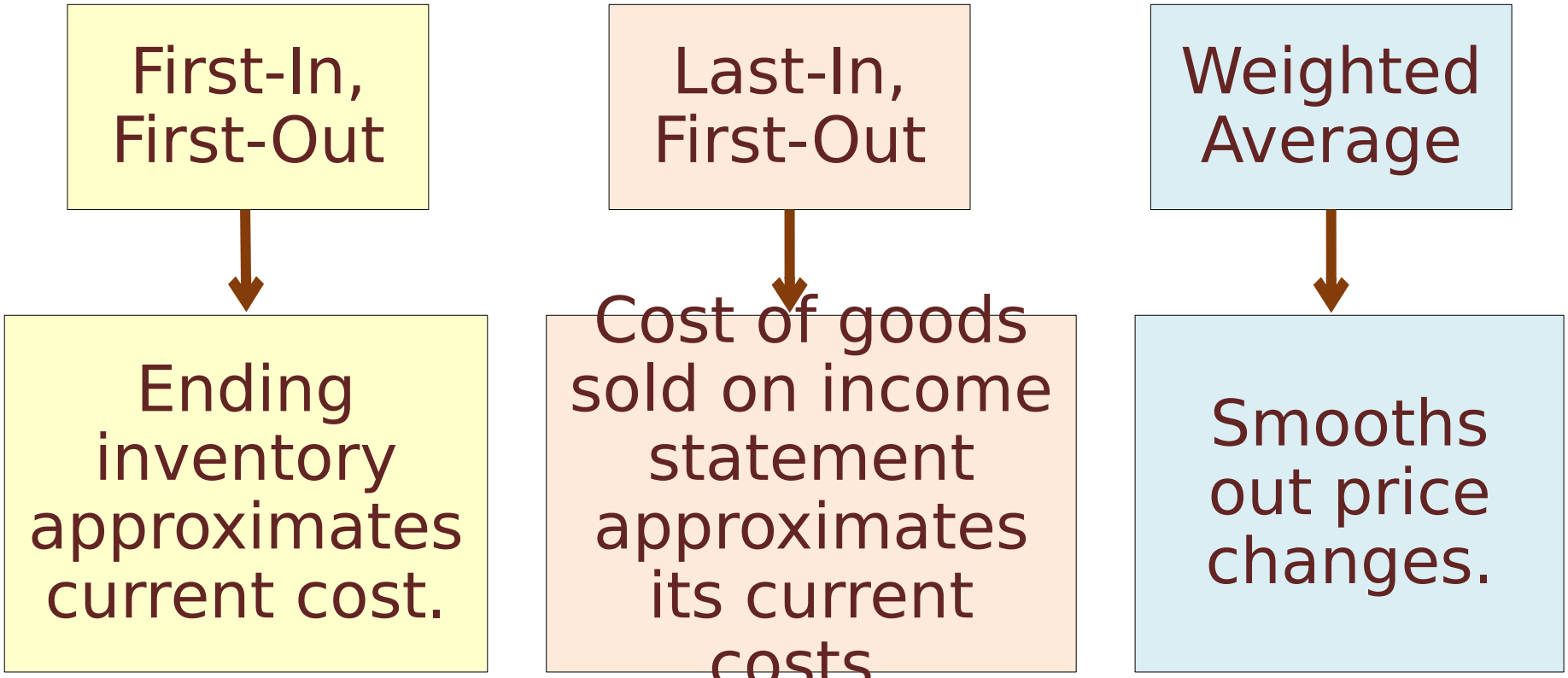
Financial Statement Effects of Costing Methods


First-In, First-Out
Last-In, First-Out
Weighted Average
Ending inventory approximates current cost.
Cost of goods sold on income statement approximates its current costs.
Smooths out price changes.

Learning Objective A1: Analyze the effects of inventory methods for both financial and tax reporting.

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Financial Statement Effects of Inventory Costing Methods

Exhibit 6.8

Because prices change, inventory methods nearly always assign different cost amounts.

Trekking Company For Month Ended August 31	Specific Identification	FIFO	LIFO	Weighted Average
Income Statement				
Sales	$ 6,050	$ 6,050	$ 6,050	$ 6,050
Cost of goods sold	4,582	4,570	4,730	4,622
Gross profit	$ 1,468	$ 1,480	$ 1,320	$ 1,428

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Tax Effects of Costing Methods

The Internal Revenue Service (IRS) requires that when LIFO is used for tax reporting, it must also be used for financial reporting. This is called the LIFO conformity rule.

Learning Objective A1: Analyze the effects of inventory methods for both financial and tax reporting.

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Learning Objective P2

Compute the lower of cost or market amount of inventory.

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Lower of Cost or Market[1]

Inventory must be reported at market value when market is *lower* than cost.

Defined as current replacement cost (not sales price).

Can be applied three ways:

1) separately to each individual item.
2) to major categories of assets.
3) to the whole inventory.

Learning Objective P2: Compute the lower of cost or market amount of inventory.

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Lower of Cost or Market 2

Exhibit 6.9

A motor sports retailer has the following items in inventory:

Inventory Items	Units	Per Unit Cost	Per Unit Market	Total Cost	Total Market	LCM Applied to Items
Roadster	20	$8,500	$7,000	$170,000	$140,000	$140,000
S[illegible]						
Totals						

$140,000 is the lower of $170,000 or $140,000.

$190,000 is lower than [illegible] cost

Journal entry to write down inventory follows:

Cost of Goods Sold	30,000	
Merchandise Inventory		30,000
Adjust inventory cost to market.		

Learning Objective P2: Compute the lower of cost or market amount of inventory

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Learning Objective A2

Analyze the effects of inventory errors on current and future financial statements.

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Income Statement Effects of Inventory Errors

	Year 1		Year 2	
Ending Inventory	**Cost of Goods Sold**	**Net Income**	**Cost of Goods Sold**	**Net Income**
Understated	Overstated	Understated	Understated	Overstated
O				Understated

Income Statements

	Year 1		Year 2		Year 3	
Sales		$100,000		$100,000		$100,000
Cost of goods sold						
Beginning inventory	$20,000		$16,000*		$20,000	
Cost of goods purchased	60,000		60,000		60,000	
Goods available for sale	80,000		76,000		80,000	
Ending inventory	16,000*		20,000		20,000	
Cost of goods sold		64,000†		56,000†		60,000
Gross profit		36,000		44,000		40,000
Expenses		10,000		10,000		10,000
Net income		$ 26,000		$ 34,000		$ 30,000

*Correct amount is $20,000. †Correct amount is $60,000. Correct income is $30,000 for each year.

Exhibits 6.10 and 6.11

Learning Objective A2: Analyze the effects of inventory errors on current and future financial statements.

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Financial Statement Effects of Inventory Errors Balance Sheet Effects

Exhibit 6.12

Ending Inventory	Assets	Equity
Understated ↓	Understated ↓	Understated ↓
Overstated ↑	Overstated ↑	Overstated ↑

Learning Objective A2: Analyze the effects of inventory errors on current and future financial statements.

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Learning Objective A3

Assess inventory management using both inventory turnover and days' sales in inventory.

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Inventory Turnover

Shows how many times a company turns over its inventory during a period. Indicator of how well management is controlling the amount of inventory available.

$$\text{Inventory turnover} = \frac{\text{Cost of goods sold}}{\text{Average inventory}}$$

Exhibit 6.13

Learning Objective A3: Assess inventory management using both inventory turnover and days' sales in inventory.

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Days' Sales in Inventory

Reveals how much inventory is available in terms of the number of days' sales.

Exhibit 6.14

$$\text{Days' sales in inventory} = \frac{\text{Ending inventory}}{\text{Cost of goods sold}} \times 365$$

Learning Objective A3: Assess inventory management using both inventory turnover and days' sales in inventory.

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Analysis of Inventory Management

Merchandisers plan and control inventory purchases and sales.

Costco and Walmart's inventory turnover and days' sales in inventory are shown below:

Company	Figure ($ millions)	Current Year	1 Year Ago	2 Years Ago
Costco	Cost of goods sold	$132,886	$123,152	$111,882
	Ending inventory	$ 11,395	$ 11,040	$ 9,834
	Inventory turnover	**11.8** times	**11.8** times	**11.9** times
	Days' sales in inventory	**31.3** days	**32.7** days	**32.1** days
Walmart	Inventory turnover	8.8 times	8.6 times	8.3 times

Exhibit 6.15

Learning Objective A3: Assess inventory management using both inventory turnover and days' sales in inventory.

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Learning Objective P3

Appendix 6A:
Compute inventory in a periodic system using the methods of specific identification, FIFO, LIFO, and weighted average.

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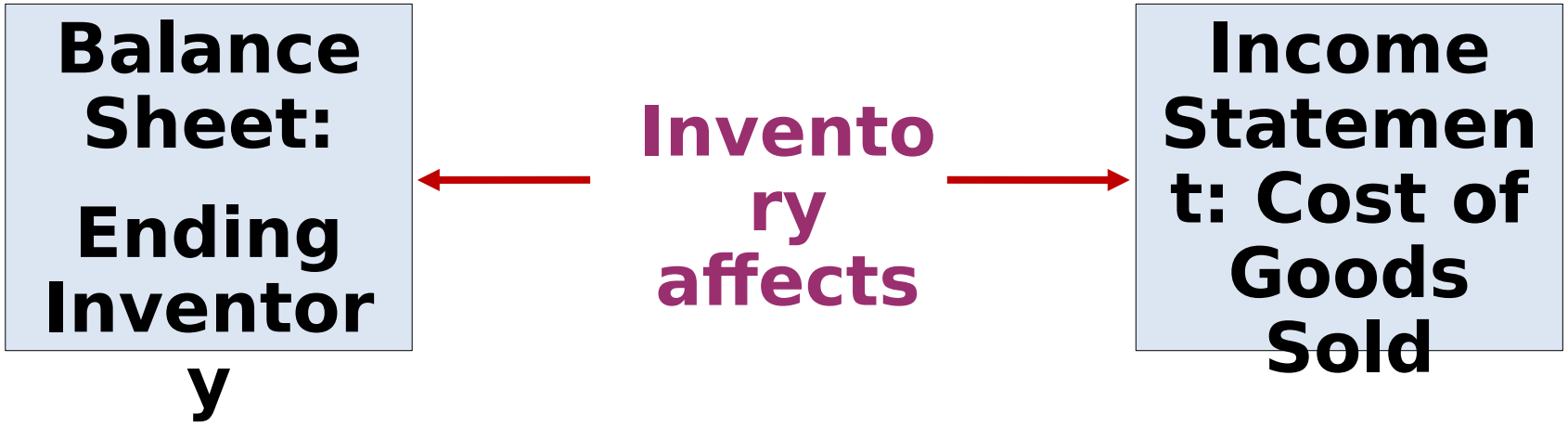
Inventory Costing under a Periodic System



Physical flow does not need to follow cost flow.

Learning Objective P3: Compute inventory in a periodic system using the methods of specific identification, FIFO, LIFO, and weighted average.

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Inventory Costing Illustration Periodic System

Exhibit 6A.1

Date	Activity	Units Acquired at Cost			Units Sold at Retail	Unit Inventory
Aug.1	Beginning inventory	10 units @ $91	=	$ 910		10 units
Aug.3	Purchases	15 units @ $106	=	$ 1,590		25 units
Aug.14	Sales					5 units
Aug.17	Purchases	20 units @ $115	=	$ 2,300	20 units @ $130	25 units
Aug.28	Purchases	10 units @ $119	=	$ 1,190		35 units
Aug.30	Sales				23 units @ $150	**12 units**
	Totals	**55 units**	=	**$5,990**	**43 units**	
		Units available for sale		Goods available for sale	Units sold	Units left

Inventory Costing Illustration Periodic System Specification Identification

Exhibit 6A.2

Date	Goods Available for Sale			Cost of Goods Sold			Ending Inventory		
Aug.1	10 @ $91	=	$ 910	10 @ $91	=	$ 910			
Aug.3	15 @ $106	=	$1,590	15 @ $106	=	$1,590			
Aug.17	20 @ $115	=	$2,300	15 @ $115	=	$1,725	5 @ $115	=	$ 575
Aug.28	10 @ $119	=	$1,190	3 @ $119	=	$ 357	7 @ $119	=	$ 833
			$5,990	43		**$4,582**	12		**$1,408**

Learning Objective P3: Compute inventory in a periodic system using the methods of specific identification, FIFO, LIFO, and weighted average.

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Inventory Costing Illustration Periodic System - FIFO

Exhibit 6A.3

Date	Goods Available for Sale			Cost of Goods Sold			Ending Inventory		
Aug.1	10 @ $91	=	$ 910	10 @ $91	=	$ 910			
Aug.3	15 @ $106	=	$1,590	15 @ $106	=	$1,590			
Aug.17	20 @ $115	=	$2,300	18 @ $115	=	$2,070	2 @ $115	=	$ 230
Aug.28	10 @ $119	=	$1,190				10 @ $119	=	$ 1,190
			$5,990	43		**$4,570**	12		**$1,420**

Learning Objective P3: Compute inventory in a periodic system using the methods of specific identification, FIFO, LIFO, and weighted average.

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Inventory Costing Illustration Periodic System - LIFO

Exhibit 6A.4

Date	Goods Available for Sale			Cost of Goods Sold			Ending Inventory	
Aug.1	10 @ $91	=	$ 910				10 @ $91	$ 910
Aug.3	15 @ $106	=	$1,590	13 @ $106	=	$1,378	2 @ $106	= $ 212
Aug.17	20 @ $115	=	$2,300	20 @ $115	=	$2,300		
Aug.28	10 @ $119	=	$1,190	10 @ $119		$1,190		
			$5,990	43		**$4,868**	12	**$1,122**

Learning Objective P3: Compute inventory in a periodic system using the methods of specific identification, FIFO, LIFO, and weighted average.

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Inventory Costing Illustration Periodic System – Weighted Average

When a unit is sold, the **average cost** of each unit in inventory is assigned to cost of goods sold.

Learning Objective P3: Compute inventory in a periodic system using the methods of specific identification, FIFO, LIFO, and weighted average.

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Inventory Costing Illustration Periodic System – Weighted Average: Cost per Unit

Exhibit 6A.5

Date	Goods Available for Sale			Cost of Goods Sold	Ending Inventory
Aug.1	10 @ $ 91 = $ 910	=	$ 910		
Aug.3	15 @ $106 = $1,590	=	$1,590		
Aug.17	20 @ $115 = $2,300	=	$2,300		
Aug.28	10 @ $119 =	=	$1,190		
		= **$108.91** ($5,990/55 units)		43 @ **$108.91** = **$4,683**	12 @ **$108.91** = **$1,307**

Learning Objective P3: Compute inventory in a periodic system using the methods of specific identification, FIFO, LIFO, and weighted average.

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Learning Objective P4

Appendix 6B:
Apply both the retail inventory and gross profit methods to estimate inventory.

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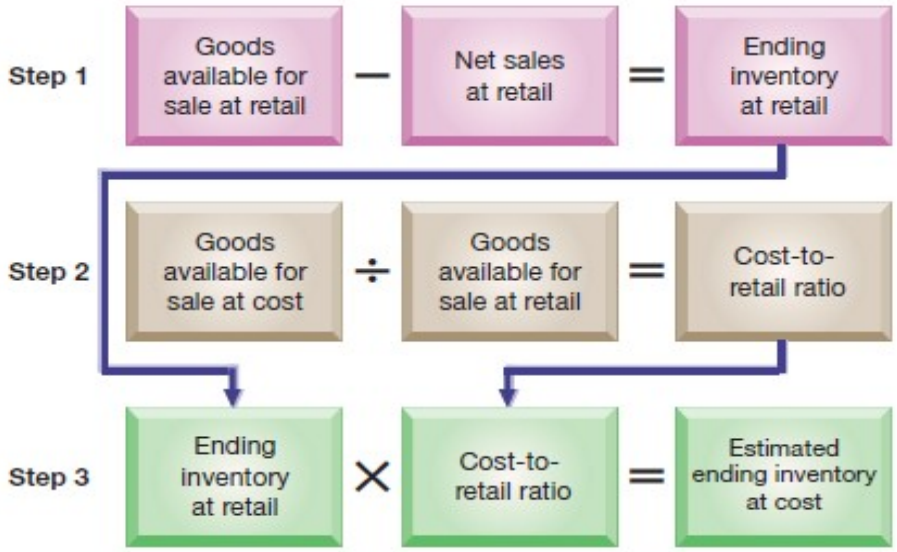
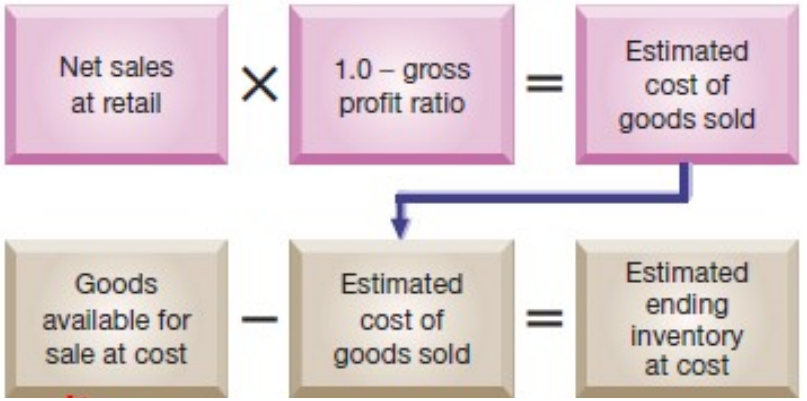
Inventory Estimation Methods

Inventory sometimes requires estimation for interim statements or if some casualty such as fire or flood makes taking a physical count impossible.

Retail Inventory



Gross Profit Method



Exhibits 6B.1 & 6B3

Learning Objective P4: Apply both the retail inventory and gross profit methods to estimate inventory.

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Access the text alternative for slide images.

End of Chapter 6

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